

Amendments to the Claims

1 Please cancel claim 12, and amend claims 1, 6, 9, 11, 13-16, 20, 29 and 30
2 as shown in the following list of claims. This listing of claims will replace all
3 prior versions, and listings, of claims in the application.

1 1. (currently amended) Transceiver apparatus for use in a multi-frequency
2 communication system, comprising:
3 a signal processor,
4 an antenna-switch comprising a multi-switch, a transmission-multiplexer
5 and a reception multiplexer, wherein said multiplexers are controllable by the
6 signal processor,
7 a frequency conversion circuitry having a transmission path and a
8 reception path, wherein each of the paths communicatively connects the signal
9 processor and the antenna-switch, and
10 an antenna terminal having a plurality of antennas connected to respective
11 switches ~~antenna~~, each of the antennas ~~antenna~~ having a transmission-connector
12 for connecting the transmission path to the antenna and a reception-connector for
13 connecting the reception path to the antenna, wherein the antenna-switch,
14 controllable by the signal processor, allows multi-frequency operation of the
15 antenna-terminal by combining a transmission-mode and a reception-mode of
16 each of the antennas ~~plurality of antenna~~,
17 the signal processor controlling the respective switches of the ~~multiple~~
18 antennas such that, at a particular instant in time, each of the ~~multiple~~ antennas is
19 configured as either a transmit-only antenna or a receive-only antenna.

1 2. (previously presented) Transceiver apparatus as claimed in claim 1,
2 wherein the signal processor is an analogue-digital signal processor formed by a
3 direct digital synthesizer driven phase locked loop radio frequency signal
4 generator.

1 3. (previously presented) Transceiver apparatus as claimed in claim 1,
2 wherein the frequency conversion circuitry comprises at least one of a local

3 oscillator and a power divider to supply a local oscillator power to the
4 transmission path and/or the reception path.

1 4. (previously presented) Transceiver apparatus as claimed in claim 1,
2 wherein the frequency conversion circuitry comprises a mixer device for
3 converting the signal between an intermediate frequency and a radio frequency.

1 5. (previously presented) Transceiver apparatus as claimed in claim 1,
2 wherein the frequency conversion circuitry comprises a direct conversion device
3 for converting the signal between a base band frequency and a radio frequency, in
4 particular by means of an IQ-method.

1 6. (currently amended) Transceiver apparatus as claimed in claim 1, wherein
2 the antenna switch comprises a matching unit formed as a frequency regulated
3 matching filter in order to provide an optimal matching factor for at least one of
4 the antennas ~~the antenna~~.

1 7. (previously presented) Transceiver apparatus as claimed in claim 1,
2 wherein the antenna switch comprises a bus connection to the signal processor,
3 wherein the bus-connection is formed as a matching network.

1 8. (previously presented) Transceiver apparatus as claimed in claim 1,
2 wherein the antenna switch further comprises a beam forming matrix device, in
3 particular a Butler-output-matrix selected from the group consisting of: a 4×4, a
4 8×8 and a 16×16 Butler output matrix.

1 9. (currently amended) Transceiver apparatus as claimed in claim 8 [[1]],
2 wherein matching units are provided inside the Butler-output-matrix ~~Butler-~~
3 ~~matrix~~, in particular a modified Butler-output matrix output/input is formed as a
4 frequency regulated matching filter in order to provide an optimal matching factor
5 for at least one of the antennas ~~the antenna~~.

1 10. (previously presented) Transceiver apparatus as claimed in claim 1,
2 wherein the antenna terminal comprises a patching unit formed as a low-pass-
3 filter to improve the matching of the antenna for different frequencies and/or for
4 different modes of a multi-frequency communication system, in particular of a
5 mobile cellular communication system or a personal communication system.

1 11. (currently amended) Transceiver apparatus as claimed in claim 1, wherein
2 the antenna terminal comprises a matching unit for at least one of the antennas ~~the~~
3 ~~antenna~~, in particular an LC component, in order to provide an optimal matching
4 factor at least one of the antennas ~~the antenna~~.

1 12. (canceled).

1 13. (currently amended) Transceiver apparatus as claimed in claim 1, wherein
2 at least one of the antennas ~~the antenna~~ is formed as an s-loop antenna having two
3 ends formed as the transmission connector and/or the reception connector.

1 14. (currently amended) Transceiver apparatus as claimed in claim 1, wherein
2 at least one of the antennas ~~the antenna~~ is configured as a copper wired antenna, in
3 particular as a flexible line antenna made of copper.

1 15. (currently amended) Transceiver apparatus as claimed in claim 1, wherein
2 at least one of the antennas ~~the antenna~~ is configured as a SMD-planar antenna.

1 16. (currently amended) Transceiver apparatus as claimed in claim 1, wherein
2 at least one of the antennas ~~the antenna~~ has a body and the body comprises an
3 integrated patching and/or matching unit.

1 17. (previously presented) Transceiver apparatus as claimed in claim 1,
2 wherein the antenna beam is formed within a range of 200 degrees.

1 18. (previously presented Transceiver apparatus as claimed in claim 1,
2 wherein the antenna beam comprises a 90 degree beam, in particular the beam is
3 formed by a 50 degree main beam and two 20 degree side beams.

1 19. (canceled).

1 20. (currently amended) Method of transceiving a multi-frequency signal in a
2 multi-frequency communication system, comprising the steps of:
3 processing the signal in a signal processor,
4 operating an antenna terminal by an antenna-switch comprising a multi-
5 switch, a transmission multiplexer and a reception multiplexer, wherein the
6 multiplexers are controlled by the signal processor, and transceiving the signal by
7 means of at least a selected one of a plurality of ~~antennas antenna~~ of the antenna
8 terminal, the antennas being connected to respective switches,
9 frequency converting the signal in a frequency conversion circuitry
10 wherein frequency converting of the signal in the frequency conversion circuitry
11 is established on a transmission path and a reception path, wherein each of the
12 paths communicates the signal between the signal processor and the antenna
13 switch,
14 wherein multi-frequency antenna terminal operation is established by
15 combining a transmission-mode of the antenna and a reception-mode of the
16 antenna, controlled by the signal processor, by means of the antenna-switch, and
17 communicating the signal between the transmission path and the selected antenna
18 via the transmission multiplexer and a transmission connector of the antenna and
19 between the reception path and the selected antenna via the reception multiplexer
20 and a reception connector of the selected antenna.
21 the signal processor controlling the respective switches of the ~~multiple~~
22 antennas such that, at a particular instant in time, each of the ~~multiple~~ antennas is
23 configured as either a transmit-only antenna or a receive-only antenna.

1 21. (previously presented) Method as claimed in claim 20, comprising
2 frequency converting the signal in a frequency conversion circuitry between a
3 base band signal and a radio frequency signal.

1 22. (previously presented) Method as claimed in claim 20, comprising
2 frequency converting the signal in a frequency conversion circuitry between an
3 intermediate frequency signal and a radio frequency signal.

1 23. (previously presented) Method as claimed in claim 20, wherein a reference
2 of an incoming signal is processed in an antenna switch after checking a beam
3 direction and a signal quality, in particular based on a BER-measurement.

1 24. (canceled).

1 25. (canceled).

1 26. (canceled).

1 27. (canceled).

1 28. (canceled).

1 29. (currently amended) A communications method using a communications
2 transceiver having multiple antennas having respective switches, a transmission
3 path, a reception path, a transmission multiplexer, a reception multiplexer, and a
4 processor, comprising:

5 ~~the processor~~ controlling the transmission multiplexer and the reception
6 multiplexer such that during transmission the transmission path is coupled to a
7 selected antenna from the multiple antennas and during reception the reception
8 path is coupled to ~~[[a]] the~~ selected antenna; and

9 ~~the processor~~ controlling the respective switches of the multiple antennas
10 such that, at a particular instant in time, each of the multiple antennas is
11 configured as either a transmit-only antenna or a receive-only antenna.

1 30. (currently amended) A communications transceiver comprising:
2 multiple antennas having respective switches;
3 a transmission path;
4 a reception path;
5 a transmission multiplexer coupled to the transmission path and to the
6 multiple antennas;
7 a reception multiplexer coupled to the reception path and to the multiple
8 antennas; and
9 a processor;
10 wherein the processor controls the transmission multiplexer and the
11 reception multiplexer such that during transmission the transmission path is
12 coupled to a selected antenna and during reception the reception path is coupled to
13 a selected antenna; and
14 wherein the processor controls the respective switches of the multiple
15 antennas such that, at a particular instant in time, each of the multiple antennas is
16 configured as either a transmit-only antenna or a receive-only antenna.